

soring its 25th graduate fellow this year. The grant is from 3M which manufactures a variety of products for home, office, and industry. Hughes Aircraft Company, developer and producer of electronics systems in space, military, and industrial technologies, is making its sixth award.

The Centennial Fellowship, given for the fourth time, commemorates the 100th anniversary of the Association. The Centennial Fellow shall have demonstrated outstanding scholastic skills as well as a similar dedication to Tau Beta Pi, as demonstrated by founder Williams. The designation is given to that fellow who, in the opinion of the Fellowship Board, is most outstanding.

The Tau Beta Pi-Stark Fellowship is named for Donald A. Stark who contributed much to progress in the fluid-power industry. The award, given for the ninth and tenth times is presented to a fellow who plans graduate study in engineering with emphasis in the field of fluid power or fluid mechanics. The stipend is provided by the earnings from a \$150,000 gift to Tau Beta Pi from the Donald A. and Jane C. Stark Charitable Trust.

Four fellowships are named for members. The Tau Beta Pi-Williams Fellowship, established in 1980 to honor the Association's Founder, Dr. Edward H. Williams Jr., is awarded to a candidate who plans to work toward a doctoral degree and enter the engineering teaching profession. Walter E. Deuchler Sr. left a bequest in 1978 to endow a fellowship for graduate study in water supply, wastewater treatment, and ecology.

Two fellowships honor former Tau Beta Pi Presidents. The fellowship named for Charles H. Spencer, President of the Association in 1936-47, is awarded for the 33rd time. It is presented to the winner who has made significant contributions to his or her collegiate chapter. The Harold M. King Fellowship honors the 1954-58 President of Tau Beta Pi whose special interest was in the student branches of the national technical societies. Presented for the 27th time, the King Fellowship is awarded for outstanding participation in volunteer technical society work.

Another named fellowship, given for the third time, is sponsored by William Fife, *California Alpha* '21. It is named in honor of his father, James Fife.

The Tau Beta Pi-Sigma Tau award perpetuates the memory of Sigma Tau, national engineering honor society founded at the University of Nebraska in 1904. When it merged with Tau Beta Pi in 1974, the assets of the Sigma Tau Foundation were transferred to the Fellowship Fund. The fellowship also commemorates Sigma Tau's Former national president and secretary-treasurer, Clarel B. Mapes.

This year Tau Beta Pi received 315 fellowship applications. Director of Fellowships Lawrence J. Hollander and Board Members Emanuel A. Salma, Velio A. Marsocci, and David R. Reyes-Guerra regret that the Association is not able to assist more of the applicants.

The 1988-89 Fellowship recipients are introduced in the following sketches.

Lisa A. Vingerhoet Centennial Fellow No. 4

Lisa A. Vingerhoet graduated from MIT at the top of her engineering class. Especially interested in the application of chemical engineering to biotechnology, she plans to continue her graduate studies with an NSF fellowship at her alma mater in the school of chemical engineering practice.

She feels the SCEP program offers greater depth in areas fundamental to chemical engineering such as heat and mass transfer and reactor design, greater emphasis on communication skills, and exposure to areas of industrial chemical engineering different from research. With a broader background, she then intends to work toward a Ph.D. at another university before pursuing her long-term goal of working in biochemical research. A Kodak scholar her last two years, Lisa was an intern in the Kodak bioprocess research labs last summer. She has been active in her church group, her dormitory, and in AIChE doing volunteer work. She enjoys running, biking, and aerobics.



Tanuja Yalamanchili Spencer Fellow No. 33

Tanuja Yalamanchili, president of Tau Beta Pi's New York Nu Chapter at SUNY, was the top aerospace engineering student to

graduate in May. Continuing her studies in aerodynamics and fluid dynamics at Cornell University in the fall, she plans to complete a Ph.D. and then to become a professor of engineering. Last summer Tanuja was selected to participate in the Washington Internships for Students of Engineering program. Her involvement was sponsored by ASTM and resulted in a paper she authored, "Technology Transfer: The Competitive Edge," soon to be published. Her summer employment as an orientation aide and residence hall advisor has increased her awareness of the needs of undergraduates. In cooperation with the engineering dean's office, she initiated an awards program to honor excellence in high-school students and to encourage them to continue their engineering interests in college. In addition to leading the New York Nu chapter, she participated in the activities of the SWE and AIAA student chapters.



John D. Ellenz King Fellow No. 27

John D. Ellenz, an entrepreneur since high-school days when he operated his own 40-acre farm and established a busi-

ness as an independent carpenter, is completing a degree in mechanical engineering at Kansas State University. He will enter graduate school at his alma mater next winter to begin advanced work on automatic-control systems and their application to automated machines and robotics. For graduate work he is considering research on the control of flexible-manipulator links. His career goal is to design and implement control systems in industry. During the summers, John works on a commercial farm doing a wide variety of tasks, including operating, maintaining, and repairing equipment, and in a small manufacturing firm, performing engineering design, production and assembly drawing, and manual documentation. President of the student section of the ASME, he has been active in $\Pi T \Sigma$ and the engineering open house.



1988 Fellow Reports

Reports of the 1988-89 winners in Tau Beta Pi's 55th Fellowship Program are presented here. They constitute the Fellows' only specific obligation to the Association after their appointment by the Fellowship Board. Their reports were written in April, and the verb tenses may sound wrong when read in mid-summer. Each of the winners expresses appreciation to advisors and major teachers, to family and helpful friends, and to the Association and Fellowship Board for the honor of being named a Tau Beta Pi Fellow.

Of the 31 fellowships awarded a year ago, 18 of the winners have been paid cash stipends totaling \$132,750. The other 13 were awarded fellowships without stipend because they did not need Tau Beta Pi's financial aid for their graduate study.

Lisa A. Vingerhoet, MA B '88 Centennial Fellow No. 4

I spent this past year earning a master's degree from MIT's school of chemical engineering practice. During the fall semester, I worked at two industrial sites with a group of six other students. We worked on a total of four projects: two at GE in the Albany, NY, area and two at Dow Chemical in Midland, MI. The intense program allowed me to apply my engineering background to real-life problems while at the same time developing my writing and presentation skills.

In the spring, I returned to Cambridge to complete the required course work. The semester was a welcome change from the breakneck pace of the fall. I enjoyed the extra time I had for activities, such as running and biking along the banks of the Charles River.

Next fall, I will enter a Ph.D. program at the University of California, Berkeley, where I hope to do research in the field of separations.

Tanuja Yalamanchili, NY N '88 Spencer No. 33

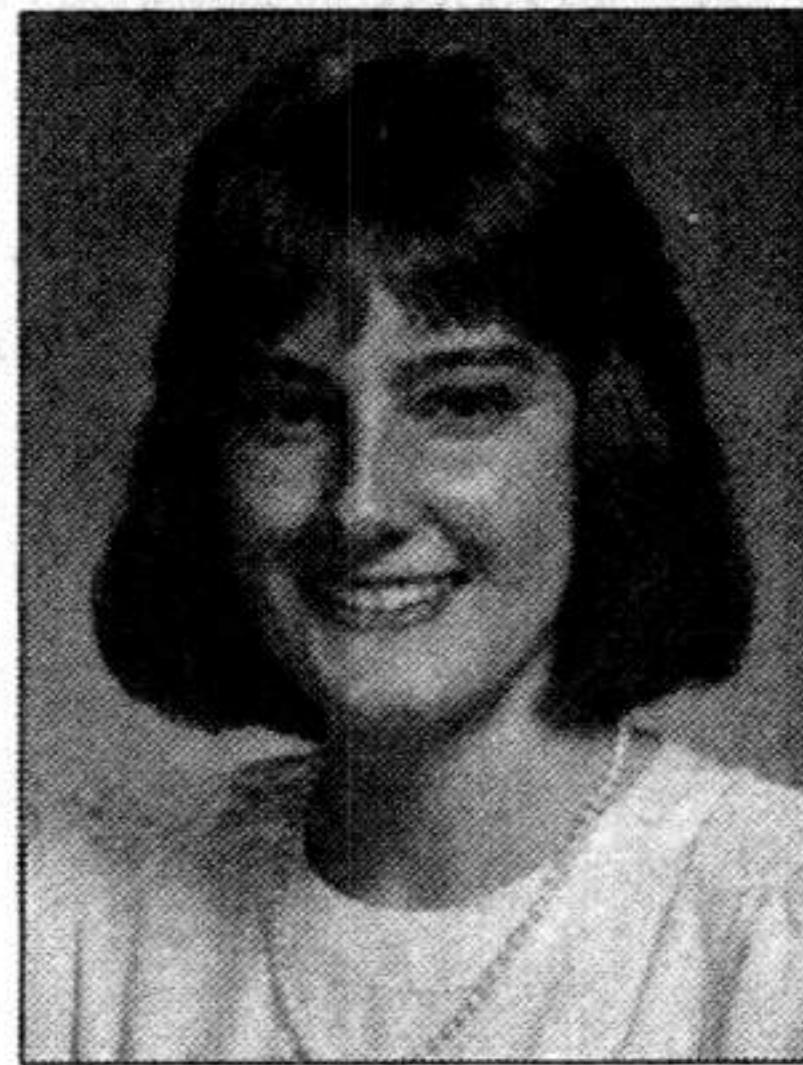
I have spent my year as a Tau Beta Pi Spencer Fellow at Cornell University. Based upon my experiences in graduate school as well as my personal goals, I have decided to take a leave of absence in order to pursue a career. I have learned valuable lessons this past year of which anyone considering graduate studies should be aware.

Graduate school requires a very high-level amount of hard work. In order to perform, you must be certain of your goals. For some people then, working full time prior to pursuing advanced studies is a good idea. A few years of work experience will provide the personal and technical maturity that is required of graduate students.

Also, when considering a particular graduate program, be aware of the social network. In many ways the happiness of graduate students is related to the personal relationships established with advisors and professors. A campus visit is helpful, since it provides the opportunity to interview current graduate students about their satisfaction with the program, professors, and support network.

Finally, I have learned that graduate work requires many non-technical skills, such as written and oral communications. I encourage anyone considering graduate school to actively develop these skills as an undergraduate and to improve them throughout one's career.

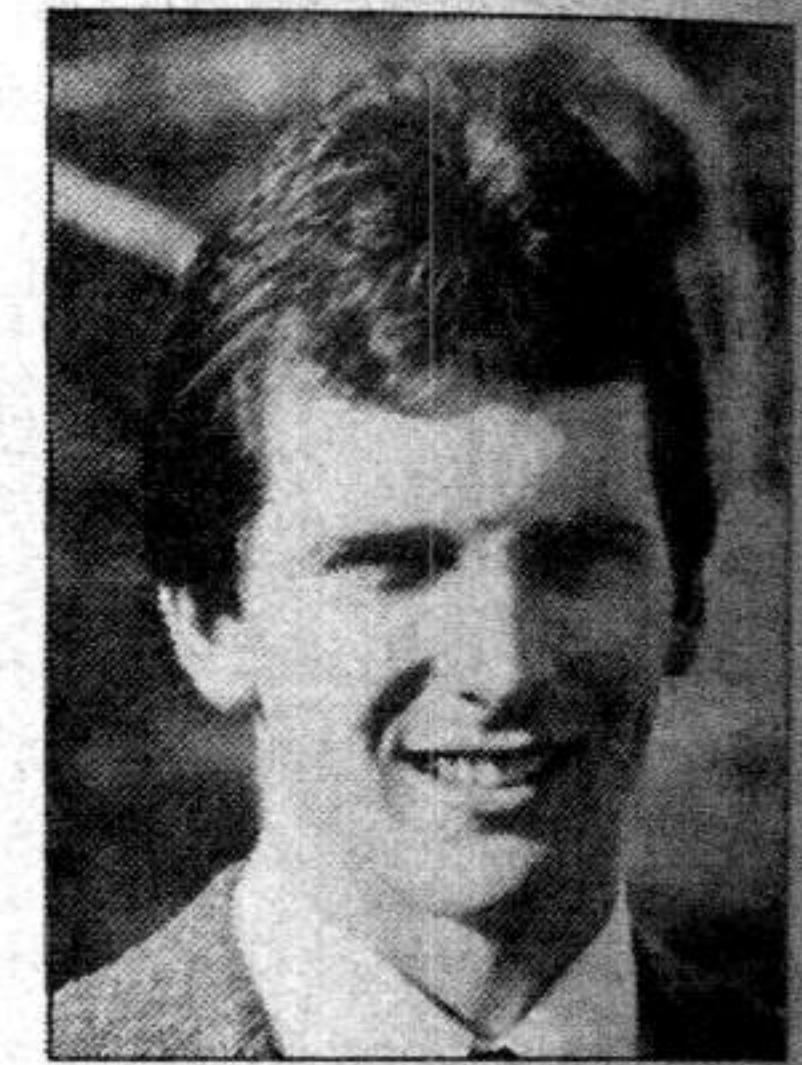
I thank the Tau Beta Pi Association for the opportunity to serve as a chapter president in 1987-88 and for the 1988-89 Spencer Fellowship. Both of these helped me to develop myself as a person and a professional.



Lisa A.
Vingerhoet



Tanuja
Yalamanchili



John D.
Ellenz



Kenneth
Dubois

John D. Ellenz, KS Γ '88 King Fellow No. 27

Having delayed the use of my Fellowship until January 1989, I am now only halfway through my first semester of graduate work. I am pursuing a master's degree in mechanical engineering at Kansas State University.

I have outlined a program of study that emphasizes robotics, dynamics, and control theory. Classes are enjoyable, and I am excited that many gaps in my undergraduate education are quickly filling. I have begun to define areas of possible thesis topics. There are several large controls projects just beginning here, and I hope to direct my thesis work toward one of them.

Early in this semester, four of us completed a three-axis robot for the mechanical engineering department. The team built and programmed all of the joint-control computers and wrote the path-generation software for the top-level computer, which is an IBM XT. The goal was to build a small robot, and students would have access to all of the software, allowing them to implement their own control algorithms on a real system. This is not usually possible with the college's commercial robots, as controller software is not available to the users.

I am grateful to Tau Beta Pi for allowing me to work full time toward my degree. I hope to begin a career in industry during the summer of 1990.

Kenneth R. Dubois, MI Δ '88 3M Fellow No. 25

I began my graduate studies as a Fellow at the University of Wisconsin-Madison in the manufacturing systems engineering program last fall to study both the engineering and management aspects of manufacturing. I came here because of the school's great reputation and the flexibility of the MSE program. I also wanted to experience a new city and an academic setting that would be both fun and challenging.

During my first semester, I was exposed to a broad range of topics in manufacturing, including both technical and philosophical

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